Project Name: Headwaters North Fork Maquoketa River

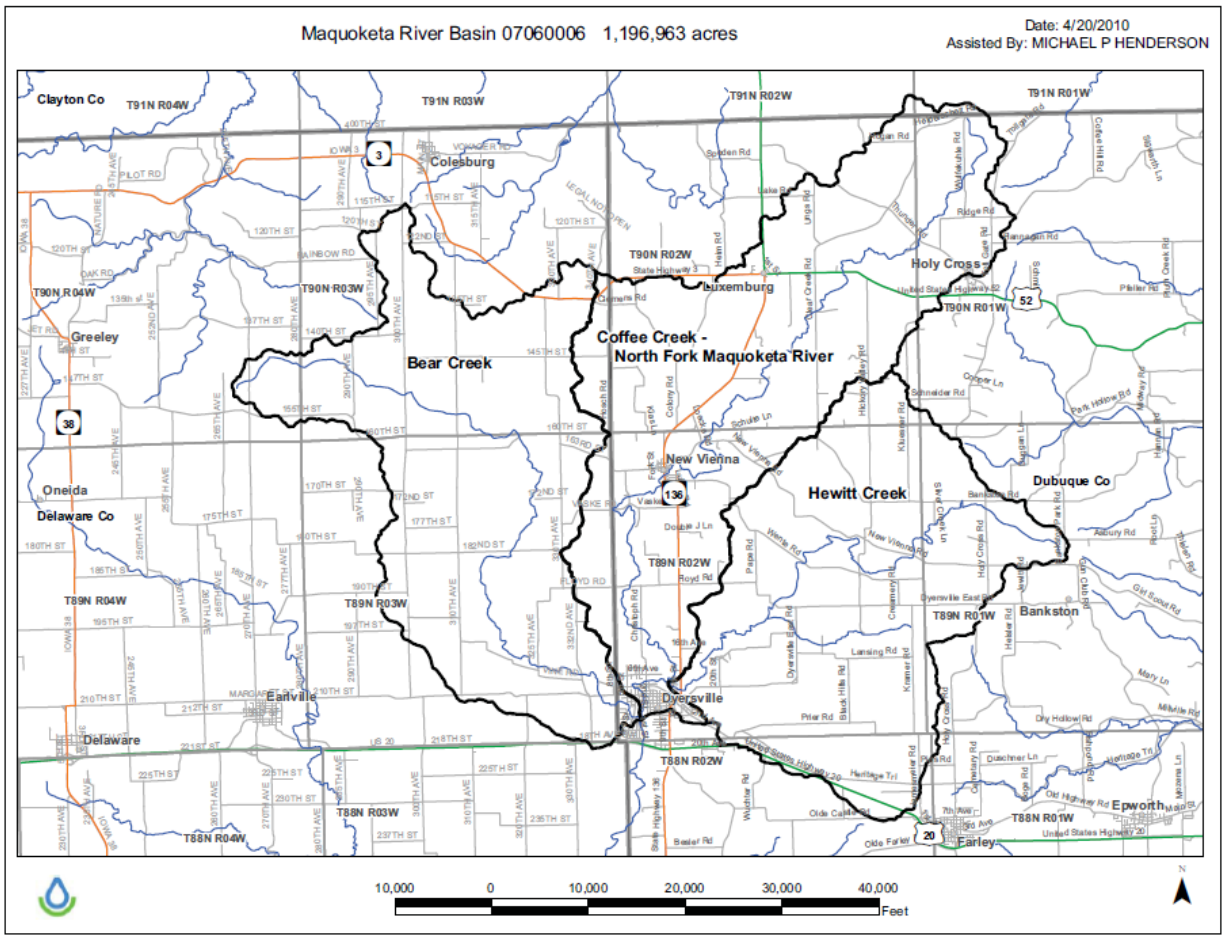
Project Number: 1204-003

WIRB Grant Recipient: Dubuque Soil and Water Conservation District

Project Length: January 2, 2013 to June 30, 2015

Date Report Prepared: December 15, 2014

Reporting Individual: Sarah Kempen



Background

The Headwaters North Fork Maquoketa River encompasses the Hewitt Creek, Bear Creek, and the Coffee Creek-North Fork Maquoketa subwatersheds. Collectively these subwatersheds lie north of the City of Dyersville, Iowa, with their confluence being in or near the city. Originally, this project area had been funded through the Mississippi River Basin Initiative for the implementation of its practices, which was accepted by the USDA in August of 2010 and was to be extended through FY14. A large component of this effort was the IJOBS funds awarded by IDALS to support the Project Coordinator for the first two years of this project. As previous funding for the support of the Project Coordinator had been exhausted, the local partners had identified WIRB as a potential funding source. WIRB accepted the application for the request to fund a Project Coordinator in September of 2012.

Financial Accountability

The information listed in Table 1 below displays the contributions made by the Watershed Improvement Review Board. The difference in Available Funds versus Total Funds Expended is due mainly to the difficulty in maintaining full time staff. Also, we tried to pay according to State of Iowa technician rates, but those rates were less than what our estimated expenses were.

Table 1. Watershed Improvement Funds

Grant Agreement Budget Line Item	Funding Source	Total Funds Approved ($)	Total Funds Approved – Amended ($)	Total Funds Expended ($)	Available Funds ($)
Personnel	WIRB	98,820	0	56,890.93	41,929.47
Travel/Training	WIRB	750	0	724.87	25.13

The information listed in Table 2 below displays the different funding sources for the North Fork Maquoketa River Watershed and their contributions. There is a difference between the approved application budget and actual amount which could attribute to multiple reasons, the most likely one being the modifications that were constantly done on the contracts. This could be due to changes the landowner wanted on the type of practice or how much was contracted.

Table 2. Total Project Funding

Funding source	Contribution	Approved application budget ($)	Actual ($)
WIRB	Salary	98,820	56,890.93
WIRB	Travel/Training	750	724.87
Dubuque SWCD	Salary	12,500	6,047.32*
MRBI	Practices	$2,752,368	2,307,630.26

*Includes January 2, 2015 payroll which has not been paid yet, so actual tax on this payroll is an estimate

Watershed Improvement Fund contribution: Approved application budget: 3%
Actual: 2.4%

Environmental Accountability

The goal for this project was that the Dubuque and Delaware County Soil and Water Conservation Districts, along with their partners, would help landowners and operators in the three subwatersheds to voluntarily implement conservation systems that would reduce nutrient loss; protect, restore, and enhance wetlands; maintain agricultural productivity; improve wildlife habitat; and achieve other objectives, such as flood reduction. In order to achieve these successes, we had set nitrogen and phosphorus goals.

The main objectives to address nitrogen and phosphorus were 21,340 acres of nutrient management; installation of 9 manure storage structures, 14 roofed manure storage structures; construction of structures to stop and store sediment and water; and to encourage manure testing as part of manure management plans for all livestock producers. In addition to the nitrogen goals was the installation of 6 denitrifying bioreactors. Of those goals, these following numbers were achieved:

- Develop Nutrient Management Plans for 21,340 acres: we had 18,025 acres under contract as of June, 2012 and achieved an additional 17,891 acres since to total 35,916 acres
- Install 6 denitrifying bioreactors: we had 3 bioreactors under contract as of June, 2012 and have had no additional applications since
- Install 9 manure storage structures and 14 roofed manure storage structures: we had 10 structures under contract as of June, 2012 and contracted an additional 22 manure storage and 4 roofed manure storage for a total of 36 structures
- Install structures to stop and store sediment and water: we had 99 structures under contract as of 2012 and contracted an addition 97 structures for a total of 196 structures that include grassed waterways, grade stabilization structures, terraces and water and sediment control basins
- Encourage manure testing as part of manure management plans for all livestock producers: in addition to the 35,916 acres of nutrient management planned that include requirements for manure testing, we also contracted 19 Comprehensive Nutrient Management Plans and 21 Written Nutrient Management Plans
- I wanted to note that we had also had some percentages listed in the proposal for nitrogen and phosphorus. Unfortunately, there was no additional water testing done after the 2006-2011 data listed in the WIRB application.

In conclusion, we went above and beyond to achieve the overall goals listed in the WIRB applications. The only goal we were short on was installing 6 denitrifying bioreactors. There were 3 contracted by June of 2012 within the watershed, but complications arose with payments on that practice. Iowa State University Extension had incurred the cost of the bioreactors and therefore no landowners had incurred personal expenses. After the complications with the payments for the bioreactors, and since there are no NRCS technical specifications for the practice, the bioreactors were no longer advertised. Additional water monitoring would be highly recommended because it would be valuable information to collect to see how much the practices have reduced nutrient runoff to our rivers and streams.

Listed in Table 3 below are practices that were funded through project partners. We thought it important to show the amounts achieved based on our goals listed in the WIRB application. Overall, a little under half of all the practices had achieved over a 50% success rate, with the majority of those being way over 100% of the goal. There were quite a few of them that had under a 10% success rate. The following is a short statement for the reason why the total accomplished were less than total planned:

- **Conservation cover (summer construction incentive):** Although there is 0 documented, we wanted to note there was one done for 106.3 acres on Joe Goebel's property in the summer of 2012. The incentive also was rolled into a higher practice incentive cost share rate instead of a stand-alone incentive in recent contract years.
- **Denitrifying bioreactor:** As discussed earlier, there were complications with payment and there is no NRCS spec for them
- **Forage and Biomass planting and Pumping Plant:** We lost the NRCS Area Grassland Specialist position and had no expertise for planning assistance and was therefore not promoted
- **Grassed Waterway:** Many of the grassed waterways now are being replaced by terraces and water and sediment control basins
- **Composting facility:** There had been some scattered interest in the beginning, but in the end no one wanted to make the commitment to such a practice
- **Fence and Access Control:** There had not been adequate pasture to keep animals out of existing timbers and streams
- **Contour Farming, Residue Management, and Strip Cropping:** There have been many producers already voluntarily doing these practices, and also terracing has forced many farmers to plant on the contour. These practices are already widely adopted, making producers ineligible
- **Tree and Shrub planting and Forest Site Preparation:** Participants for these practices were directed to Iowa's REAP program
- **Mulching:** This had usually been done more as a repair, and not so much as a preventative practice because most areas do not need it or we do not know if they will until the damage is already done

Also included are a Funds Approved and Funds Expended column because we thought it would be interesting to compare the projected costs to what was actually spent per practice. Most were at or above what was expected. There were two odd cases worth noting. The first being Grassed Waterways having a higher amount in Funds Expended versus Funds Approved when there was such a low percentage completed. It was decided that for a while the average cost of waterways was based on three state average, but after the proposal was written, MRBI changed the average cost to a five state basis which brought the cost much higher per acre than before. The other case was Water and Sediment Control Basins having such a small Funds Expended compared to Funds Approved; the case being that current staff believes the amount was inaccurate to start and should have been $33,733 for Funds Approved.

We had taken some pictures of practices that were implemented in the project area, which are listed in the Appendix.

Table 3. Practices

Practice or Activity	Unit	Approved Application Goal	Accom-plishments	Percent Comple-tion	Total Accomp + contracted	% Accomp + Contracted	Funds Approved ($)	Funds Expended ($)
Conservation Cover	Ac.	20	0	0%	0	0%	2,400	0
Comprehensivv e Nutrient Management Plans	No.	18	8	44%	18	100%	144,000	141,958
Nutrient Management	Ac.	14,200	8870.7	62%	17890.9	125%	170,400	427,195
Cover Crop	Ac.	500	1817	363%	3809.7	762%	100,000	242,174
Critical Area Planting	Ac.	55	90.7	165%	108.2	197%	10,570	14,769
Denitrifying Bioreactor	No.	3	0	0%	1	33%	17,998	0
Forage & Biomass Planting	Ac.	30	0	0%	0.5	2%	3,000	103
Grade Stabilization Structure	No.	12	4	33%	7	58%	240,000	96,852
Grassed Waterway	Ac.	220	30.9	14%	38.1	17%	38,500	82,112
Heavy Use Area Protection	Ac.	3	5.2	173%	5.3	176%	54,000	38,501
Residue Management	Ac.	5,000	278.4	6%	352.1	7%	625,000	13,104
Strip Cropping	Ac.	100	39.2	39.2%	39.2	39.2%	6,270	2,419
Terrace	Ft.	53,000	27388	52%	38027.7	72%	147,340	111,883
Waste Storage Facility	No.	12	12	100%	22	183%	630,000	2,015,222
Water and Sediment Control Basin	No.	23	25	109%	25	109%	253,000	37,325
Composting Facility	No.	1	0	0%	0	0%	10,000	0
Fence	Ft.	2,000	0	0%	0	0%	2,700	0
Contour Farming	Ac.	200	0	0%	0	0%	2,060	0
Access Control	Ac.	60	0	0%	0	0%	3,060	0
Roof Runoff Structure	No.	7	0	0%	12	171%	7,000	11,026
Tree & Shrub Planting	Ac.	10	0	0%	0	0%	4,060	0
Mulching	Ac.	10	0	0%	0	0%	3,561	0
Pumping Plant	No.	1	0	0%	0	0%	4,628	0
Subsurface Drain	Ft.	51,000	51209.8	100%	68474.8	134%	63,240	82,543
Underground Outlet	Ft.	41,000	42936.2	105%	56759.2	138%	75,850	135,531
Forest Site Prep	Ac.	20	0	0%	0	0%	2,531	0

*Accomplished were **payments made** in either 2013 or 2014 for Dubuque and Delaware County

**Due to the loss of our watershed coordinator in December of 2014, we created a column 'Total Accomp + contracted' with the intention of showing additional totals that will be achieved once they become constructed and paid on at a future date.

In part of reporting data for the practices applied throughout the watershed project area per landowner, we also calculated how much sediment loading reduction and phosphorus reduction had occurred for each practice. Listed in Table 4 is a summary of the total amount of sediment loading reduction and phosphorus reduction that occurred from the start to the end of the project. These numbers were calculated for each landowner per practice using the Pollutant Reduction Calculator that was created by the Iowa Department of Natural Resources, and then totaled together. Within this tool, there is a calculator for each type of practice that has the possibility of reducing sediment and phosphorus loss. Some of the components necessary to calculate sediment and phosphorus loss are subwatershed area, subwatershed length, and before and after soil loss from RUSLE2.

Table 4. Pollutant Reduction Calculator Totals by Year per Practices

Practice	**Year**	**Amount contracted**	**Acres treated**	**Sediment loading reduction (t/yr)**	**Phosphorus reduction (lbs/yr)**
340	2013	1216.9 ac	1813 acres	834 t/yr	1085 t/yr
	2014	70 acres	150 acres	64 t/yr	83 t/yr
410	2013	3 units	223 acres	894 t/yr	1163 t/yr
	2014	0	0	0	0
412	2013	24.2 acres	1169 acres	2430 t/yr	3158 t/yr
	2014	0	0	0	0
600	2013	31164 ft	75 acres	237 t/yr	308 t/yr
	2014	0	0	0	0
638	2013	13 units	74 acres	127 t/yr	164 t/yr
	2014	0	0	0	0

*Numbers for paid contracts only, not contracted

Ultimately, most of the environmental goals stated in the application were attained. Aside from the denitrifying bioreactor, we had achieved all the nitrogen and phosphorus goals listed. It would have been more applicable to have the water monitoring data for each year after 2011 since we began applying these practices in the project area to really represent the reductions that have been made, but with the amount of practices applied, it would be safe to say there has been a significant reduction in sediment and nitrogen to the rivers and streams. The chart listing the practices and the goals set for the project area have some low percentages, but it does not mean that the practice was completely ignored; most cases it was addressed in a different program or done already by the producers. There were many practices that we went above and beyond our goal, which included terraces, underground outlets, nutrient management, critical area planting, waste storage facilities, cover crops and many others.

Program Accountability

Education and outreach to landowners is most essential for a project to be successful because it not only instills a foundation of knowledge of what practices are available, but also the process involved and the success stories to involve other landowners to try it themselves.

Initially, the landowners in the North Fork Maquoketa project area needed to be informed of the startup of the project and the individual in charge of its success. The news of the new watershed coordinator being hired was shared through published articles in the Dyersville Commercial and Cascade Pioneer, a Facebook page was created for the project where they posted pictures of the coordinator, and also through live radio interviews with KMCH in Manchester and KDST in Dyersville. To let the landowners know about the project and any updates associated with it, outreach included: flyers created and handed out to major locations where producers spent time, interviews conducted by Dyersville Commercial and in Today's Farming magazine, through the Facebook project page, post cards and newsletters, creating a mailing list, and field days. Some of the information shared through outreach were funding opportunities available to those in the watershed and those who are Historically Underserved and female producers, batching and ranking dates for signup, field days to discuss nutrient management, cover crops, manure spreader calibrations, and ag waste treatment storage options. Another important outreach activity was public meetings for landowners in the project area to discuss Mississippi River Basin Initiative project updates for Hewitt Creek and North Fork Maquoketa. Attached in the appendix are some samples of flyers and newsletter sent out for our outreach activities.

Every project will have its share of complications and conflicts to overcome. This project had become very successful and therefore required a very large workload to manage the millions of dollars that had been allocated to it. During the course of the project the field office had lost an experienced federal technician, along with numerous project coordinators. Due to the loss of staff, the work involved in contracting, surveying and designing, and reporting has suffered numerous setbacks. There was also a drawback while waiting for the Pollutant Reduction Calculator to become available for use. So when the program became available in September of 2014, there were a large accumulation of practices that needed calculations done. Fortunately, we were able to hire new project coordinators when needed, but with that involved months of training before they could be deemed reliable for the work to continue. A lot of the structural workload has been completed, or at least surveyed, but projects are contracted to be constructed through 2016. Due to recent hiring of a new federal technician, the field staff will be continuing to design and work on contracted practices.

The biggest lesson to take out of this project is to know how big of a commitment your field office is capable of taking on. Due to the Mississippi River Basin Initiative being so successful in the North Fork Maquoketa River Watershed, this was a lot for the field staff in Dubuque County to take on due to having to constantly adjust to the unforeseen staff variations. It took the Epworth field office into the fourth year out of five to really see how successful the

project had become, so our recommendation is to have at least 4-5 years planned when millions of dollars will be spent on a project.

During this same hire period, Delaware County took on a second MRBI project with the hopes that an additional coordinator would be provided for this project. WIRB eventually helped fill that position with an existing Delaware County staff member. Thus their staff was also stretched further to address the added workload created with this new project.

The final report is being prepared at this time due to the recent loss of our current project coordinator. It has been mutually agreed upon between the Epworth field office staff and the Dubuque Soil and Water Conservation District commissioners to not hire another project coordinator due to the long hiring process and the upcoming end of this project.

Appendix

Outreach

McCarthy the new face in local watershed

Conservation, national environment the focus right now for Epworth's new watershed coordinator

Terry Gravel - Owner
895 Pat Street, Cascade, Iowa
563-852-3340 • 563-542-4610

Newsletter in Today's Farming article to inform landowners of the new hired project coordinator.

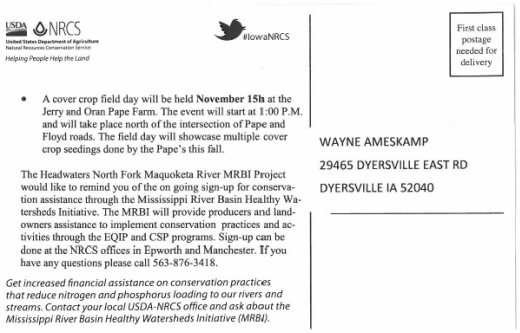
Legals

McCarthy new watershed coordinator

Big picture planning for small farms workshop

Delaware County Auditor begins term as ISACA president

Newsletter in the Dyersville Commercial to inform landowners of the new hired project coordinator.



USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service
Helping People Help the Land

#IowaNRCS

First class postage needed for delivery

- A cover crop field day will be held **November 15h** at the Jerry and Oran Pape Farm. The event will start at 1:00 P.M. and will take place north of the intersection of Pape and Floyd roads. The field day will showcase multiple cover crop seedings done by the Pape's this fall.

The Headwaters North Fork Maquoketa River MRBI Project would like to remind you of the on going sign-up for conservation assistance through the Mississippi River Basin Healthy Watersheds Initiative. The MRBI will provide producers and landowners assistance to implement conservation practices and activities through the EQIP and CSP programs. Sign-up can be done at the NRCS offices in Epworth and Manchester. If you have any questions please call 563-876-3418.

Get increased financial assistance on conservation practices that reduce nitrogen and phosphorus loading to our rivers and streams. Contact your local USDA-NRCS office and ask about the Mississippi River Basin Healthy Watersheds Initiative (MRBI).

WAYNE AMESKAMP
29465 DYERSVILLE EAST RD
DYERSVILLE IA 52040

Sample postcard to discuss upcoming cover crop field day at Jeff and Oran Pape farm

Questions?
Contact Epworth Field Office:
Phone: (563)876-3418#3
210 Biermon Road
Epworth, IA 52045

Mississippi River Basin Initiative

Helps to implement conservation practices that avoid, control, and trap nutrient runoff; improve wildlife habitat; and maintain agricultural productivity. To enroll, applicants must meet the minimum eligibility requirement of the Environmental Quality Incentives Program (EQIP); a program available to farmers that offers financial and technical assistance to install or implement management practices.

Applications for EQIP accepted on continuous basis, but...

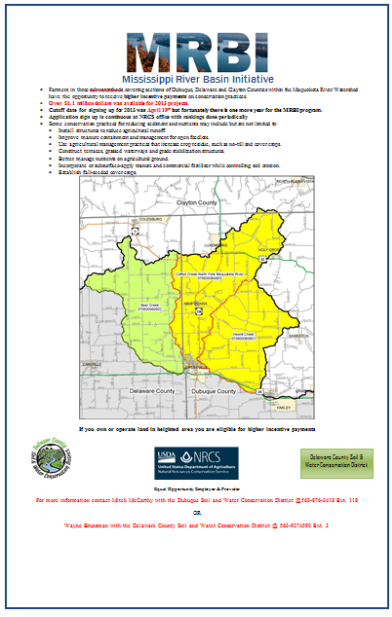
Second cutoff date for batching and ranking applications is February 21st!

Applications can be made at the nearest local NRCS office

Landowners within the Headwaters North Fork Maquoketa River Watershed have the opportunity to receive higher incentive payment rates! $1.16 million dollars has been allocated for 2014 applicants. Hurry in soon if interested to make it by the second cutoff!

Common Conservation Practices include:
- Cover Crops
- Grade Stabilization Structures
- Grassed Waterways
- Nutrient Management Plans
- Terraces
- Waste Storage Structures

Sample of flyer posted at different locations in project area to inform landowners watershed and the upcoming batching and ranking.



MRBI

Mississippi River Basin Initiative

- Farmers in this subwatershed servicing portions of Dubuque, Delaware and Clayton Counties within the Maquoketa River Watershed have the opportunity to receive higher incentive payments on conservation practices.
- Over $1.1 million dollars was available for 2013 projects
- Cutoff date for signing up for 2013 was April 19th but fortunately there is one more year for the MRBI program.
- Application sign up is continuous at NRCS office with meetings done periodically
- Some conservation practice for reducing sediment and nutrients may include but are not limited to:
  - Install structures to reduce agricultural runoff.
  - Improve manure containment and management for open feedlots.
  - Use agricultural management practices that increase crop residue, such as no-till and cover crops.
  - Construct terraces, grassed waterways and grade stabilization structures.
  - Better manage manure on agricultural ground.
  - Incorporate or inject/flag-apply manure and commercial fertilizer while controlling soil erosion.
  - Establish fall-seeded cover crops.

If you own or operate land in highlighted areas you are eligible for higher incentive payments

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Delaware County Soil & Water Conservation District

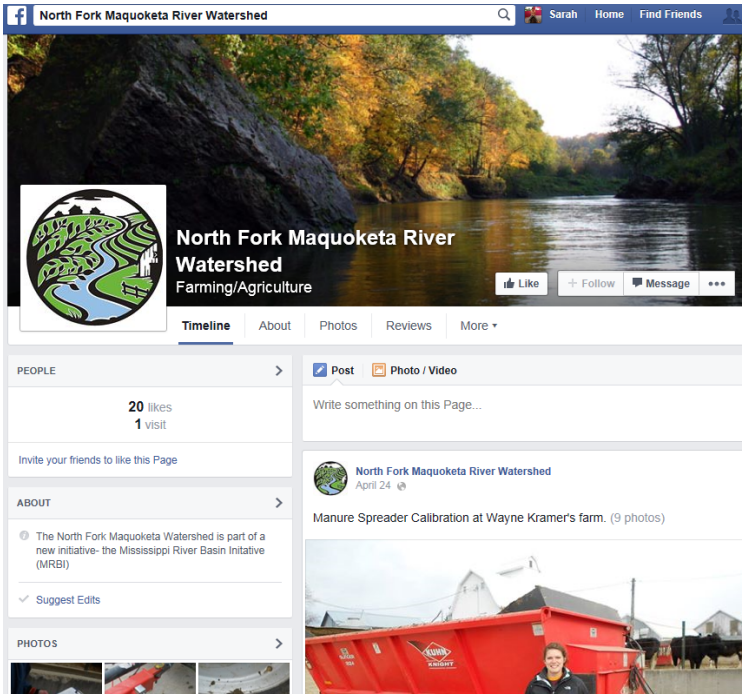
Equal Opportunity Employer & Provider

For more information contact Mitch McCarthy with the Dubuque Soil and Water Conservation District @ 563-876-3418 Ext. 116

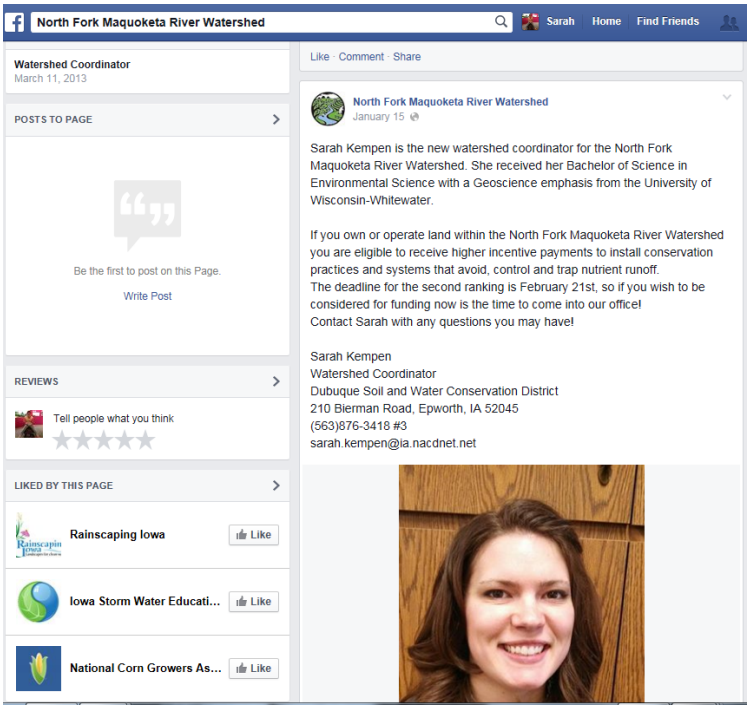
OR

Wayne Brueman with the Delaware County Soil and Water Conservation District @ 563-927-4990 Ext. 3

Sample of flyer posted in different locations throughout project area to inform landowners about the project and its continuous sign up



Screenshot of North Fork Maquoketa River Watershed homepage on Facebook.



Screenshot for posting on project Facebook page to inform landowners of the new hired project coordinator.

Picture of manure spreader calibration demonstration at Wayne Kramer farm

Picture of manure spreader calibration demonstration at Wayne Kramer farm

Pictures in watershed

Joseph Goebels narrowbase terrace

Earl Hosch's 1.1 million gallon manure tank

Jerome Riniker's broadbase terrace

Joe Kluesner's rye cover crop

Earl Hosch's grassed waterway

Neal Kramer's Water and Sediment Control Basin

Joe Recker's toewall grade stabilization structure